Notice of Allowability	Application No.	Applicant(s)
	10/631,167	FITZSIMMONS ET AL.
	Examiner	Art Unit
	Khanh Dang	2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *1-26*.

3. ☒ The drawings filed on *31 July 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some*   c)☐ None   of the:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1)☐ hereto or 2)☐ to Paper No./Mail Date _____.

   (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

Khanh Dang
Primary Examiner

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the prior art

does not teach or suggest a combination of a crossbar switch comprising at least two of

the slave ports having an overlapping address range to address one or more slave

devices, and an arbitration control to determine access to the slave ports when at least

one access request to the overlapping address range is made (claims 1, 7, 15, and 25);

a method in a data processing system, comprising: determining whether an access to a

memory is hitting a memory page address that is currently accessed; when the access

misses a memory page address, determining whether there is an available slave port

among a plurality of slave ports associated with a slave; when there is not an available

slave port, determining whether the access is higher in priority than any one of a

plurality of current accesses corresponding to the plurality of slave ports; when the

access is higher in priority than any one of the plurality of current accesses, determining

whether the access is higher in priority than at least two of the plurality of current

accesses; and when the access is higher in priority than at least two of the plurality of

current accesses, determining which one of the at least two of the plurality of current

accesses is available first and selecting a slave port corresponding to one of the at least

two of the plurality of current accesses that is available first (claim 19); or a method in a

data processing system comprising: determining whether the access to a memory is

hitting a memory page address that is a currently accessed memory page, and if so,

steering the access to a same port as the currently accessed page; when the access

misses a memory page address, determining whether there is an available slave port

among a plurality of slave ports associated with a slave and steering the access to the

available slave port; when the access is higher in priority than any one of the plurality of

current accesses, determining whether the access is higher in priority than at least two

of the plurality of current accesses; when the access is higher in priority than at least

two of the plurality of current accesses, determining which one of the at least two of the

plurality of current accesses is lowest priority and selecting a slave port corresponding

to one of the at least two of the plurality of current accesses that is lowest priority; and

when the access is not higher in priority than at least two of the plurality of current

accesses, steering the access to a slave port having a lowest priority access that can be

arbitrated (claim 26).

Abu-Lebdeh et al. and Van Loo generally disclose a crossbar switch and an

arbiter for arbitrating and selectively establishing communications between the masters

and the slaves. Abu-Lebdeh et al. and Van Loo do not disclose the use of a

overlapping address range for the slave ports and an arbiter for arbitrating access when

the access to the overlapping address is made.

Foster et al. discloses a pre-arbitration request limiter, wherein access to a

shared bus is blocked when certain conditions, including a condition wherein the real

master and a non real master are both requesting access to the same access range,

are met.

Yazdy discloses an address and data bus arbiter for pipelined transactions.

WO 02/15021 discloses a plurality of data processing units, a plurality of memory

banks having a shared address space are coupled to the processing units by a crossbar

switch, wherein access to a memory bank is locked using semaphore implemented with the shared address space of the memory banks.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 703-308-0211.

Khanh Dang
Primary Examiner